

No. 777,812

PATENTED DEC. 20, 1904.

G. H. F. SCHRADER.
TIRE VALVE.

APPLICATION FILED JAN. 24, 1898.

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NO MODEL.

FIG. 1.

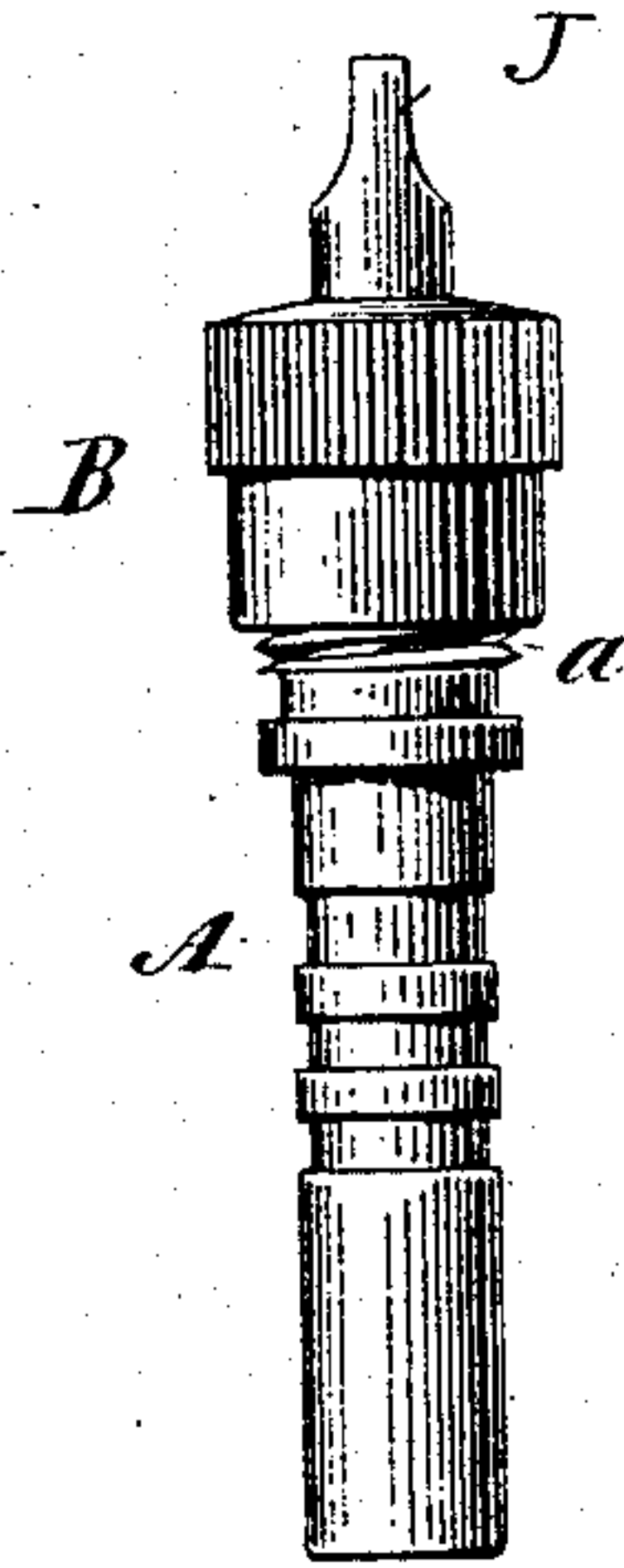


FIG. 2.

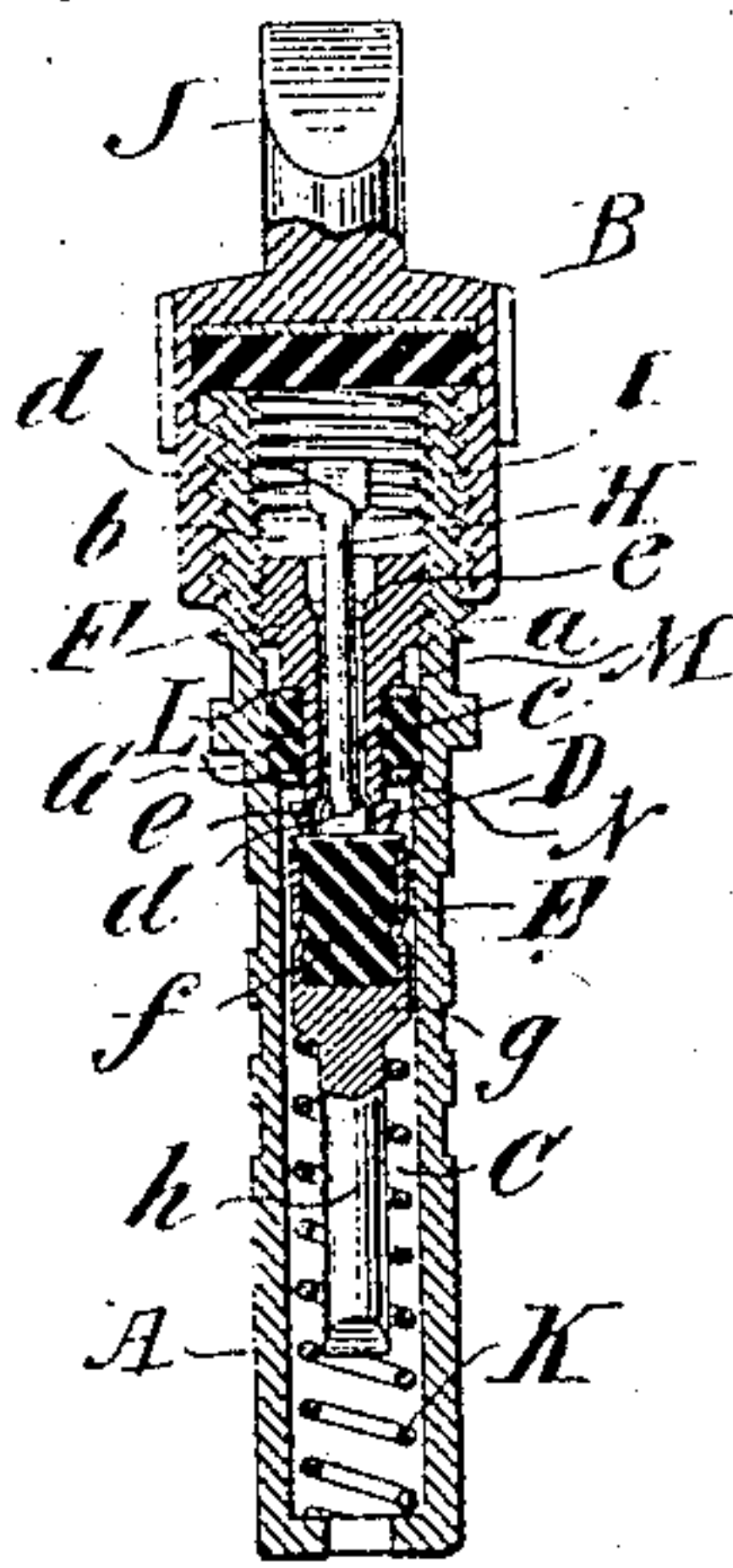


FIG. 3.

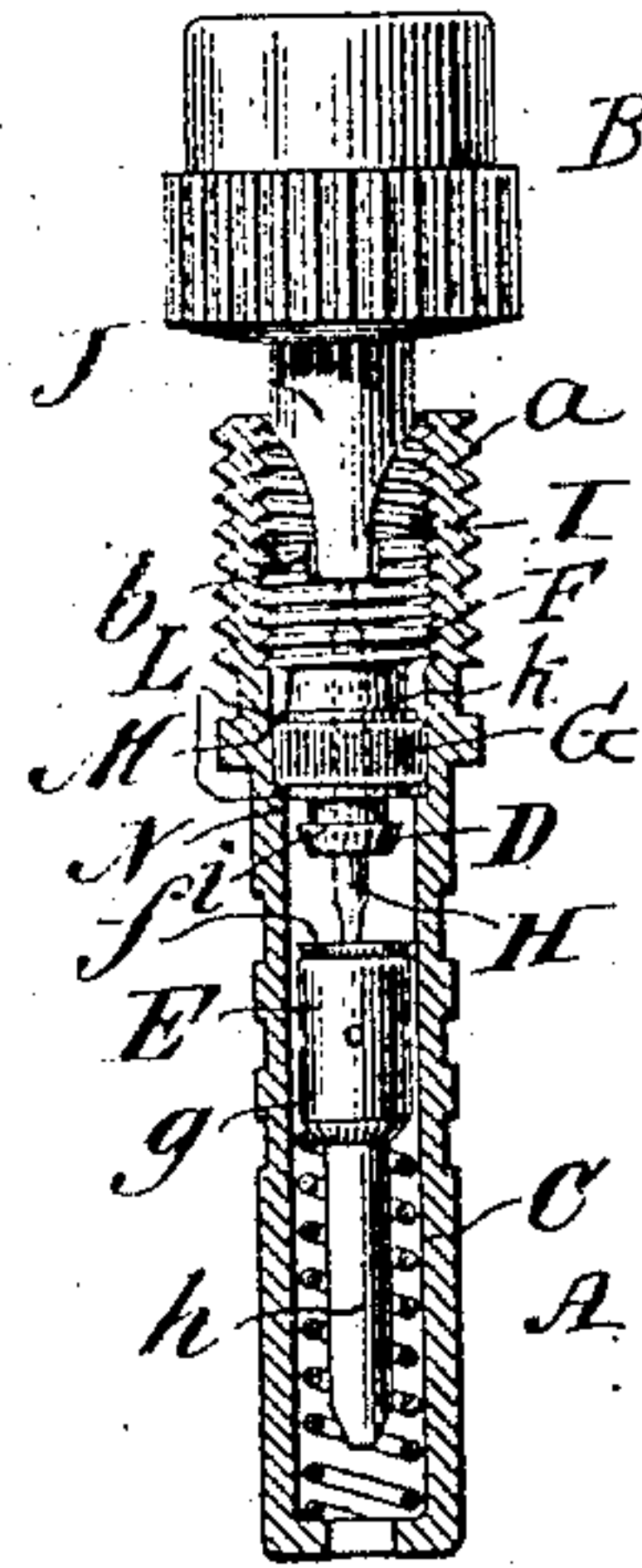


FIG. 4.

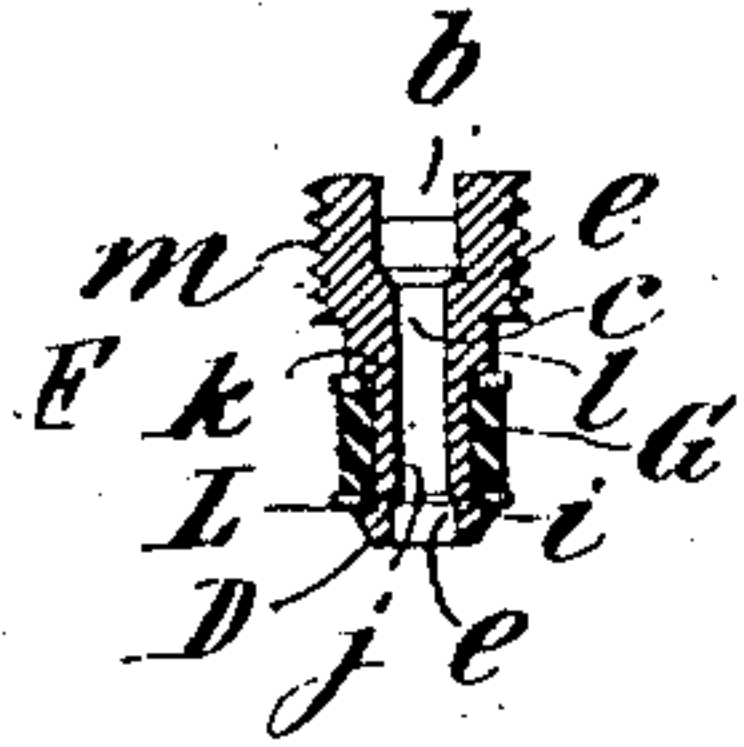


FIG. 6.



FIG. 5.

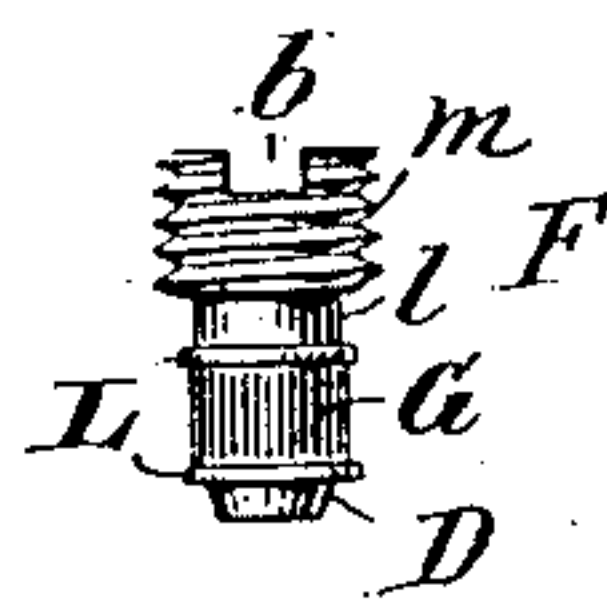


FIG. 7.



FIG. 8.



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UNITED STATES PATENT OFFICE.

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TIRE-VALVE.

SPECIFICATION forming part of Letters Patent No. 777,812, dated December 20, 1904.

Application filed January 24, 1898. Serial No. 667,723.

To all whom it may concern:

Be it known that I, GEORGE H. F. SCHRADER, a citizen of the United States, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Tire-Valves, of which the following is a specification.

This invention relates to valves, and especially to pneumatic valves for tires, and aims to provide certain improvements therein.

To this end my invention comprehends a valve having a shell adapted for connection to a tire and having a valve-chamber, an internal-screw-threaded socket leading from its outer end to the chamber, and a shoulder between the socket and chamber; and the invention provides an improved removable tubular seat member screwing into the socket and having as an integral or fixed part a seat within the chamber for engaging a valve proper; and the invention provides a movable packing-washer between the seat member and shell and means whereby this washer need not rotate with the screwing in or out of the seat member, but will be compressed with such screwing in to make a leak-tight joint.

In the accompanying drawings, which show the preferred form of my invention, Figure 1 is a side elevation of a tire-valve. Fig. 2 is an axial section thereof with the parts in the closed position. Fig. 3 is a similar view, the internal parts being shown in elevation and held in the open position by the inserted end of the inverted cap. Fig. 4 is an axial section of the seat member in its normal condition, and Fig. 5 is a side elevation thereof. Fig. 6 is a side elevation of the seat member alone. Fig. 7 is a plan of one of the metal washers, and Fig. 8 is a plan of the packing-rings.

Referring to the drawings, A is the shell of a tire-valve. B is the cap thereof. C is the valve-chamber. D is the valve-seat. E is the valve proper. F is the seat member. G is the packing-washer. H is the deflator. I is the screw-threaded socket. J is the deflating-finger on the cap, and K is a valve-spring. These parts may be of any usual or suitable

construction or character. In the construction shown the shell has an outer screw-thread *a*, over which screws the cap B, which incloses the end of the shell when applied thereto, and the cap has the finger J, which is formed as a screw-driver which fits into the socket I and strikes the deflator to unseat the valve proper for deflation and enters a notch *b* in the member F to screw the latter in or out for assembling or separating the parts of the valve. The seat D is an annular seat, to which leads an inlet-duct *c*, traversing the member F inwardly from the socket I, in which duct the stem H is fixed, as by having shoulders *d* opposing shoulders *e* near the extremities of the duct.

The valve proper is shown as composed of a body of packing material *f*, such as rubber, and a cup-shaped casing *g* enveloping it and having an integral projecting guiding-tail *h*.

According to the preferred form of my present invention the packing-ring G is swiveled to the seat member, so that the seat can revolve without revolving the packing, and there will be no injury to the latter due to distortion while screwing in the plug. I prefer to form the seat member F as a tubular plug having the seat D on its inner end, a shoulder *i* above the seat, a smooth-bottom groove *j* above the shoulder, a shoulder *k* above the groove, a plain portion *l* above the shoulder *k*, and an external screw-thread *m* at its outer end engaging and screwing into the thread of the socket I, so that the plug is entirely inclosed in the latter. I prefer to employ a ring of rubber as the packing and to spring this over the shoulder *i* and into the groove *j* of the plug, mounting it rotatively on the latter. Between the ring and plug I prefer to use antifriction or other washers L, one being shown above and one below the ring, both of which are shown as metal rings or disks interposed between the shoulders of the member and the ends of the packing-ring. The washers have a central hole *n* of less diameter than the smaller shoulders of the member. Each washer is of a diameter sufficient to project some distance

beyond the adjacent portion of the member, and each is free to revolve independently of either the ring or member. The washers are applied on the member by distorting them enough to enable forcing them over the smaller or seat end of the member, after which they are flattened, which reduces their diameter to less than that of the shoulder *z*. The ring *G* is sprung over the member and washers by stretching it sufficiently to pass it over these and is contracted around the neck formed by the groove *j* between the two washers. It is of such diameter and thickness that ordinarily it closely embraces the neck at its inner side, while at its outer side it is of less projection than the washers. The shell is preferably formed with a smooth wall or face *M* inwardly of the socket *I* and with a shoulder or contraction *N* between this wall and the valve-chamber *C*. The innermost washer *L* strikes the shoulder *N* when the member is screwed into the socket and is arrested and held by this shoulder during continued screwing in of the member. The outermost washer is forced in with the continued screwing in of the member, thus compressing the packing-ring between the washers, which distorts it outwardly and inwardly into such intimate contact with the wall *M* of the shell and the wall *P* at the bottom of the groove *j* of the member that a leak-tight joint is made. The seat revolves with the member, but the washers remain stationary with the packing-ring, the friction of the latter holding them against rotation. Thus the torsional strains due to screwing in or out are avoided by reason of the freedom with which the surfaces of the member will turn on the washers. In screwing out the member the lower shoulder *z* will bear against the lower washer *L* and lift the latter, thus insuring withdrawal of the packing-ring after it has become adhered to the shell.

The seat member constitutes an improved article of manufacture which can be readily applied to any suitable valve by any ordinary person.

In use the valve will be employed as are ordinary tire-valves, the seat member being screwed in to inclose the valve proper and being screwed out to renew, repair, or clean the parts of the valve. If a packing-washer becomes damaged, another can be sprung into position between the washers.

It will be seen that my invention provides improvements which can be readily and advantageously availed of, and it will be understood that I do not limit myself to the particular details of construction, arrangement, and combination set forth as constituting its preferred form, since these may be modified or employed as circumstances or the judgment of those skilled in the art may dictate without departing from the spirit of the invention.

What I claim is—

1. In tire and other valves, a valve-shell having an inner chamber and a valve proper in said chamber, in combination with a tubular plug having a valve-seat entering said chamber, a packing in said chamber compressed against the shell by the screwing in of said plug, and means for preventing the torsional distortion of said packing during such rotary movement of the plug.

2. In tire and other valves, a valve-shell having an inner chamber and a valve proper in said chamber, in combination with a tubular plug having a valve-seat entering said chamber, a packing in said chamber, means for positively holding said packing on said plug so that said packing is removable with said plug, and means for preventing torsional distortion of said packing when the plug is rotated.

3. In tire and other valves, a valve-shell having an inner chamber and a valve proper in said chamber, in combination with a tubular plug having a valve-seat entering said chamber, an elastic and compressible packing in said chamber compressed against said shell by the screwing in of said plug, and means for preventing the torsional distortion of said packing during such rotary movement of the plug.

4. In tire and other valves, a valve-shell having an inner chamber and a valve proper in said chamber, in combination with a tubular plug having a valve-seat entering said chamber, a packing in said chamber, means for positively holding said packing on said plug so that said packing is removable with said plug, and a washer interposed between said packing and said plug whereby to prevent torsional distortion of the packing when the plug is rotated.

5. In tire and other valves, a shell having a valve-chamber and a valve proper in said chamber, in combination with a tubular member screwing in said shell and having a seat, a ring of compressible packing material surrounding said member, means for positively holding said packing on said member, and means for preventing torsional distortion of said packing when said member is screwed into place to compress said packing.

6. A tire-valve having a shell, a plug adapted to be secured thereto, a packing carried by said plug and rotatable relatively thereto, said packing adapted to be compressed between the shell and plug during relative rotation thereof, means for positively holding said packing on said plug, and an antifriction device which permits such rotation to compress the packing without distorting the latter.

7. In tire and other valves, a shell having a valve-chamber, a screw-threaded socket, and a smooth wall between said chamber and socket, in combination with a plug having an outer screw-thread screwing in said socket, an inner seat within said chamber, and a smooth

wall opposite that of said shell, and a ring of packing material between said smooth walls, compressed by the screwing in of said plug and thereby expanded against and making a tight joint with said walls, and an antifric-

tion-washer between said ring and plug transmitting the inward movement of the plug to the ring and permitting rotation of the plug independently of the ring.

8. In tire and other valves, a shell having a valve-chamber and an outer screw-threaded socket, in combination with a tubular plug screwing in said socket, having a valve-seat in said chamber and a shoulder outwardly of said seat, a ring of packing material between said shell and plug making a leak-tight joint therebetween, and an antifriction-washer between said ring and said shoulder transmitting the axial movement of the shoulder to the ring and permitting independent rotation of the plug.

9. In tire and other valves, a valve-shell having a chamber C, a screw-threaded socket I, and a shoulder N therebetween, in combination with a seat member screwing into said socket and carrying a valve-seat in said chamber, a ring of packing material surrounding said seat member, and a washer between said ring and said shoulder, said seat member compressing said ring toward said washer and

thereby distorting it to make a tight joint between the shell and member.

10. A plug for tire-valves having a valve-seat, a packing adapted to be compressed against a valve-shell, means for positively holding said packing on said plug adapted to permit relative rotation thereof, and means for preventing twisting of the packing when it is compressed during rotary movement of the plug.

11. As a new article of manufacture, a seat member for tire-valves having a valve-seat at one end, a screw-thread at its other end, and a reduced portion between its ends, and a ring of packing material surrounding said reduced portion, and a washer between said ring and member.

12. As a new article of manufacture, a seat member for tire-valves having a valve-seat D, a screw-threaded end, a groove *j* between its ends, shoulders *k* and *i* above and below said groove, washers L surrounding said groove, and a packing-ring G between said washers.

In witness whereof I have hereunto signed my name in the presence of two subscribing witnesses.

GEO. H. F. SCHRADER.

Witnesses:

GEORGE H. FRASER,
THOMAS F. WALLACE.